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DEPARTMENT OF THE NAVY
COMMANDER MILITARY SEALIFT COMMAND
WASHINGTON NAVY YARD BLDG 210
901 M STREET SE
WASHINGTON DC 20398-5540

COMSCINST 4770.1D
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28 August 1973

COMSC INSTRUCTION 4770.1D

Subj: MSC SHIPS; PREPARATION FOR RETENTION LAY-UP IN NATIONAL DEFENSE RESERVE FLEET (NDRF)

Ref: (a) COMSCINST 3121.3C (TANKOPINS)

Encl: (1) Preparation guidelines for MSC ships to be placed in National Defense Reserve Fleets
(2) Maritime Administration Form MA-496B

1. Purpose. This instruction establishes procedures for the preparation of MSC ships for lay-up for retention in a National Defense Reserve Fleet (NDRF).

2. Cancellation. COMSC Instruction 4770.1C.

3. Applicability. These procedures are applicable to all MSC ships, including contract-operated ships. The procedures outlined in enclosures (1) and (2) are to be closely adhered to.

4. Responsibility. Upon receipt of instructions to inactivate MSC ships which have future potential DOD use, COMSC will direct an MSC Area Commander to act as the COMSC representative for inactivation and transfer to NDRF. The cognizant MSC activity concerned will be responsible for activation, preservation, stripping, disposition of removed materials, repairs, if any, final condition survey and delivery of the ship to the fleet site nominated. In the case of contract-operated ships, the Contract Operator will arrange for accomplishment of the inactivation work under the supervision of the designated MSC Area Commander. The latter will be for disposition of materials and records, final condition surveys and delivery to the MARAD reserve fleet site. Inactivation work contracted for by the Contract Operator will be supervised by the MSC representative in the same manner as provided in reference (a) for repairs in excess of $10,000.

5. Action. When directed, the designated MSC Area Commander or Contract Operator shall accomplish all items of work outlined in enclosures (1) and (2) and other work including stripping as directed by COMSC prior to delivery of the ship to the reserve fleet. Inactivation specifications prepared by the selected MSC representative or Contract Operator shall be submitted to the MARAD Regional Director for concurrence priors to bidding. A copy of the approved specifications shall be furnished to the MARAD Regional Director for record purposes. The specifications for inactivating the ship shall be prepared in two parts: Part I Ä Inactivation work, except that which requires drydocking for accomplishment, and Part II - Drydocking and

associated underwater work. The work covered by Parts I and II shall be bid on a fixed-timed basis with performance periods specified for each part. Bids shall be taken coastwise (Atlantic and Gulf Coasts for Atlantic area ships and Pacific Coast for Pacific area ships). Award shall be made for individual parts or combination of Parts I and II, whichever is to the best advantage of the Government. Part I work shall be accomplished before Part II in the event of a split award. Interport differentials shall be applied for evaluation purposes and shall consist of best estimate of actual cost to the Government for movement of vessel under own power, it feasible, and under tow, and will further provide for repatriation of crew and transportation plus per diem of government inspectors where appropriate. Liquidated damages will comprise only wages and subsistence of the crew assigned aboard ship and per diem cost for inspectors. Only skeleton crew as considered necessary to assist the MSC representative in the supervision of repair and inactivation work shall be retained as ship's crew during the inactivation period. A specification for future activation of the selected ship shall be prepared and submitted to COMSC with 45 days after ships have been delivered to the reserve Fleet.

6. Reports. The cognizant Area Commander shall submit to MSC, as early as practicable, an inactivation schedule for each ship nominated for lay-up (MSC Report 4770-2). The schedule shall include the bid opening date and the estimated date for accomplishing all phases of the inactivation, including estimated date of delivery to the reserve fleet. Bid results shall be submitted to COMSC prior to award. The progress of each ship being inactivated shall also be reported weekly on MSC 4720/8, indicating which part of the work is currently underway, percentage completion thereof, changes in estimated completion dates, if any, and dates of actual completion.

/S/
JOHN D. CHASE

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Maritime Administration

PREPARATION GUIDELINES FOR MSC SHIPS TO BE PLACED IN NATIONAL DEFENSE RESERVE FLEETS **(R**

1. Records and Documents. The MSC representative shall ensure that the Master disposes of publications and documents aboard the vessel as follows:

a. Upon receipt of authority to disestablish the RPS Account, conduct an audit of RPS publications and then prepare a transfer report (COMSEC Form 153) for the RPS material will be promulgated by Commander, Naval Security Group Command or the Administrative Commander.

b. Turn over to the MSC representative, for screening and disposal to Navy Records Management Centers, as appropriate, ship's deck and engine logs (smooth and rough), bell books, ship's correspondence files, ship's message files, personnel files, purser's records, and general correspondence files.

c. Government-owned publications of a general nature and charts, other than those distributed by the Registered Publication Systems and those required for retention on board by current MARAD lay-up instructions, shall be turned over to the MSC representative for disposal. Instruction books, technical manuals, records, plans covering ship's installations, and inventory records shall be retained onboard in a secured storeroom.

d. Turn over blank standard forms to the MSC representative for redistribution.

e. Prepare and forward to COMSC an accurate report (MSC Report 5212-1) indicating the exact disposition of records made in accordance with the foregoing subparagraphs (a) through (d) in order that it may be placed in the ship's files and thereby furnish ready and accurate information as to the location of all documents for future reference if needed. A copy of this report shall also be furnished to the cognizant Maritime Administration Regional Director, or his representative, for record purposes.

f. Ship's Certificate of Inspection shall be turned in to the Marine Inspection Office, U.S. Coast Guard, nearest to the lay-up site. If necessary, a request for a permit to proceed under tow shall be made to the Coast Guard. The Certificate of Ownership shall be forwarded to COMSC.

**U.S. DEPARTMENT OF TRANSPORTATION MARITIME ADMINISTRATION (A
OFFICE OF SHIP OPERATIONS DIVISION OF RESERVE FLEET**

MARAD REQUIREMENTS COVERING THE ACCEPTANCE OF MILITARY SEALIFT COMMAND (MSC) SHIPS WHICH ARE TO BE PREPARED FOR SUBSEQUENT LAY-UP PRESERVATION IN THE NDRF

A. NOMINATION OF MSC SHIPS FOR NDRF LAY-UP

The request to MARAD to accept an MSC ship in the NDRF shall be initiated by COMSC and far in advance of a prospective lay-up date as possible, and coordinated with the Office of the Chief of Naval Operations (NOP-404C). It is essential in such requests that MSC state that the ship is to be placed in the Reserve Fleet under preservation, for retention, and that MSC agree to bear the expenses associated with the ship's lay-up.

B. GENERAL REQUIREMENTS

1. Eligible Ship Types

All ships nominated for lay-up shall be convertible merchant types.

2. Nomination Information

When a ship is nominated for lay-up, MSC shall advise at time of nomination: (a) ship's connected D/H load in DVA; and (b) ship's approximate fore and aft draft upon arrival at NDRF.

3. Delivery Preparations

Prior to delivery of an MSC ship to the NDRF it shall be prepared by the MSC, in accordance with the special provisions expressed in Parts C and D of this instruction. The quality and thoroughness of all work shall be of a caliber acceptable to the cognizant MARAD Region Director. Should a deactivation issue develop which is not adequately covered by these instructions, it is desired that particulars be referred to MARAD, Washington, so that the problem can be resolved through coordination with MSC-Wash.

4. Delivery to NDRF

A ship accepted for lay-up shall be delivered, at MSC's expense, to the NDRF site designated by MARAD.

5. Berthing and Special Lay-up Expenses

MSC shall underwrite the cost of berthing a ship in an NDRF site as well as the expenses incurred for bringing electric power aboard for D/H service and for cathodic protection. If it is

necessary for a tanker to make an outside passage between deactivation yard and NDRF and the ship is ballasted for this voyage, MSC shall be responsible for the expense of deballasting the tanker in order for it to be properly termed for NDRF lay-up. Such expenses shall include MARAD's administrative overhead computed at the rate prevailing at the time of delivery.

6. Initial Custodial and Preservation Costs

MSC shall retain accountability for a ship after delivery and underwrite its custodial and preservation costs until such time as MARAD has had an opportunity to budget for and obtain appropriated funds to assume these responsibilities.

7. Payment

Payment for the costs described in Items 5 and 6 above shall be made as MARAD elects, either on a reimbursable basis or through an advance of funds to cover the estimated costs. MSC will be advised of the estimated costs at the time MARAD expresses its willingness to accept the ship in the NDRF, or as soon thereafter as is possible.

C. TECHNICAL REQUIREMENTS

1. Watertight Integrity of Submerged Hull Areas

(a) Drydocking

Each ship nominated for lay-up shall be drydocked before delivery to the NDRF. MSC shall attest that during this drydocking, necessary repairs were accomplished to ensure the watertight integrity of the ship during prolonged lay-up. Each stern gland and rudder glands shall be repacked prior to delivery. Stern tube and strut bearing boots may be installed at MSC discretion. In the event such measures are omitted, MARAD will seacock the stern tubes of ships moored in the James River Reserve Fleet.

(b) Blanking

Welded outboard blanks shall be installed on all sea connections and include air testing where practicable. Also, within the area extending from two (2) feet below and four (4) feet above the quiescent waterline, where blanking is required, only flush type blanks shall be used. The minimum thickness of such blanks shall be one-half inch.

(c) Underwater Surfaces

Prepare underwater surfaces by removing all foreign substances including loose paint, rust, and scale, and paint underwater body, rudder and appendages from keel to 2' below the line of flotation with one coat wash primer and two coats of anti-corrosive paint. Sandblast to bare metal a 6' band of shell plating from stem to stern, including rudder, from 4' above to 2' below line of flotation. Apply a coal tar epoxy coating system of not less than 14 mils thickness in accordance with manufacturer's instruction. Paint flotation marks port and starboard located at the bow, stern frame and trailing edge of the rudder. Paint in all draft marks.

(d) Anchor Chains

Anchor chains shall be ranged, washed, gauged and any defective parts replaced. The chain locker, sump, and hand pump system shall be drained and thoroughly cleaned of all mud, scale and other foreign materials. Chains, chain lockers, and sump shall be coated with Grade No. II metal conditioning compound, Spec. No. MIL-M-15205D (Navy), before the chains are restowed. If it is necessary for a ship to make a sea passage from a deactivation yard to a Reserve Fleet site, watertight covers shall be placed over the spurling pipes, or if not fitted with covers, the spurling pipes shall be stuffed with burlap and covered with concrete to prevent water from entering the chain locker. For ships entering the James River Reserve Fleet site, the second and third shots of chain from both port and starboard anchor chains shall be removed and one of these 2 shot lengths shall be placed on each side of forecastle deck. The anchors shall then be reconnected to remaining chain and housed.

(e) Sea Chests

Clean and paint the sea chest strainer plates as specified for the underwater body, and stow the plates in the engine room spaces. Clean and paint the interior surfaces of all sea chests with Apexior No. 3.

(f) Transducer

Install transducer cover plates (if so fitted).

(g) Peak Tanks/Inner Bottoms

Drain and clean fore and aft peak tanks and all inner bottom fresh water tanks.

(h) CP Studs

Install cathodic protection studs in accordance with MARAD Reserve Fleet requirements. (This applies to tankers only.)

(i) Shaft Lock

Install suitable shaft locking device.

(j) Rudder

Secure rudder in midships position by closing hydraulic ram valves or the use of suitable wire lashings.

2. Stripping

MSC shall accomplish the following stripping measures upon each ship before its delivery to the NDRF.

(a) Dangerous and Classified Materials

Remove small arms, ammunition and classified items such as coding wheels, classified correspondence, inflammables, paints, greases, oil in containers, pyrotechnics, rockets, flares, primers, pilot signals, lead-acid batteries (except those which are new and in a dry state), boiler chemicals, cylinders of oxygen, hydrogen, acetylene, freon, and any other gases of a combustible or toxic nature. Remove all fire extinguishers except CO_2.

(b) Pilferable Materials

Pilferable materials remaining on board shall be consolidated in specific storerooms sealed by at least one welded bar. This bar should lap the door by approximately 4 inches on each side and should be solid welded rather than tack welded. Two screened openings of approximately 8” x 10” should be provided in these compartments to permit flow and circulation of dry air, one opening close to the deck and the other close to the overhead. A Government furnished humidity sensing device shall be installed in each storeroom that is permanently sealed, in a manner and location to be designated by MARAD’s Region Director.

(c) CO_2 System

Master CO_2 controls shall be disconnected, all CO_2 bottle stop valves closed with caps in place, and CO_2 rooms shall be locked.

(d) Narcotics and Drugs

All narcotics, barbiturates, alcohol and alcoholic beverages, antibiotics, biologicals, X-ray film, rubber goods, and other deteriorative items of medical supplies and equipment shall be removed. It is considered that most drugs, chemicals and reagents are deteriorative items for the purpose of this instruction.

3. Exterior Preparation of ship Before Delivery

(a) Every piece of material or equipment which is not an integral part of a permanently attached topside appurtenance shall be removed from the ship or stowed below.

(b) Booms. All booms shall be stripped without burning shackles or fittings, and all gear coiled, tagged, and stowed below in respective 'tween decks. Gear shall include boom topping lift block hinge pins, boom heel pins and goosenecks, which shall be stowed below. Heavy lift blocks, purchase, and topping lift shall be unshipped and also stowed in the 'tween decks on platforms 12" off the deck and 2' from the bulkheads or the skin of the ship. Heavy lift blocks shall be secured with lashings. If at all possible, all booms shall be stowed in respective 'tween deck storage is not possible then all booms except the heavy lift shall be lowered into the cradles properly wedged and secured to prevent them from resting on the metal of the cradle, and properly wedged under the goosenecks to prevent them from freezing in sockets. Goosenecks to be coated with suitable preservation. Heavy lift booms shall be properly secured in a vertical position with suitable wire lashings. The metal collar clamps shall be loosely assembled to permit preservation of boom in way of clamps. The metal collar clamps on runner fairleads shall be loosely assembled to permit preservation of boom in way of clamp, or removed and stowed below.

(c) Cargo Unit Winches. Winches and their pedestal controls shall be removed and stowed in respective cargo hold. Openings created by winch removals, except holes within the pedestal foundation, shall be made watertight in accordance with paragraph (e) of this Section. Cabling within the pedestal foundation shall be pulled back into the ship and watertightness shall be effected by simply blanking off the foundation at its top with one-quarter inch steel plate.

(d) Vent fans and motors. All weather-deck fans and motors shall be removed from their foundations, tagged and stowed below under D/H. All openings, thus created in the decks or superstructure by such removals, shall be sealed with a welded, or bolted and gasketed one-quarter inch steel plate cover to provide air-tightness.

(e) Weather-Deck Electric Wiring. Wherever electrically operated equipment is to be removed from a weather deck, its wiring shall be disconnected (not cut) from the equipment and pulled back into the ship. The opening thus created will be made watertight by blanking, either welded or bolded with gasket, or by use of sealing compound as appropriate. Seal off all weather deck receptacles.

(f) Navigational equipment (gyro-repeaters, searchlights, etc.) Radar masts and antennas, signaling devices (engine-order telegraph, radio antenna and insulator, etc.) and non-expendable light fixtures (debarkation, cargo, etc.) shall be removed and stowed inside.

(g) Fenders/Chafing Strips

Ships fitted with fenders, rubbing or chafing strips constructed of wood shall have such material removed to facilitate future full preservation. If the material is considered reusable by MSC, it may be stowed below on dunnage in areas where it will not interfere with personnel approaching and examining the ship's interior while the ship is under D/H.

(h) Anchor Windlass

The anchor windlass shall be in good operating conditions upon arrival of a ship at the NDRF. On ships equipped with a steam windlass, a section of the steamline shall be removed in way of the steam valve and a flange installed fitted with a 1-1/2 inch pipe connection for compressed air. The exhaust valve shall also be removed and those sections of the steam and exhaust lines leading aft shall be blanked off. The removed sections of steamlines and exhaust valve are to be secured by wire to the windlass. On ships with electric windlass MARAD will provide power supply unless MSC is otherwise advised.

(i) Deck Cleaning

Decks shall be thoroughly cleaned to remove all dirt, loose scale, trash and other foreign materials.

(j) Paint

Hull, deck and superstructure coatings shall be intact and of a quality that no further exterior preservation will be required during the ship's first 2 years in the NDRF. This determination will be made through a joint inspection by MSC and MARAD representatives.

(k) Mooring Equipment

Mooring wires shall be on deck ready for use in mooring the ship at the NDRF. Eight lengths of at least 7/8 inch diameter wire, each with a 6-foot eye, (eye may be made by using wire rope clamps), and each not less than 250 feet in length, are required. Four of these wires shall be coiled and located forward and four coiled and placed aft. Insurance wires shall be neatly laid out on deck; one forward and one aft. Eight appropriately sized wire clamps to be provided to facilitate insurance wire use. Deviation from this requirement may be sanctioned by local MARAD representative who shall determine if any special stowage arrangements are needed or if additional wires are required to ensure safe mooring at certain berths.

(l) Lifeboats and Liferafts

Lifeboats shall be lashed down in the dry cargo holds 18" off the deck and at least 2' from the skin of the ship, or removed and warehoused. Lifeboats which are to be stowed in the holds shall be stripped of all gear and equipment except masts, oars, rudders, tillers, blocks, ridge poles, spreaders and covers. Wire boat falls, boat davit arms and boat winches and controllers shall be removed, tagged, and stowed in D/H area where they can be best accommodated. When a lift raft is required to be left on deck for use of a riding crew accompanying the ship to a reserve fleet, the raft shall be of the inflatable type that is U.S. Coast Guard approved and such raft shall be promptly stowed below upon arrival at NDRF. All other liferafts shall be removed from the vessel or stowed below.

(m) Lifeboat Motors

Lifeboat motors shall be completely drained of water, oil and fuel, and salt water cooling systems flushed with fresh water. Remove spark plugs from motor and inject one-half pint of good quality motor oil in each cylinder. Replace spark plugs after cranking engine over two complete revolutions. Clean and gas-free fuel tanks.

(n) Accommodation Ladders

Accommodation ladders shall be unshipped from shipside location, together with all gear, including stanchions, platforms, davits, tackle, etc., and stowed in a convenient 'tween deck 2' from the skin of the ship and 12" from the deck.

(o) Weatherdeck wire reels shall be removed and stowed in D/H zone.

(p) Overboard Discharge Openings

Install blanks on all internal overboard discharge openings above flotation line (do not blank deck scuppers). Blank off all such openings with 1/4" mild steel plate.

(q) Weatherdeck Lagging/Insulation

All lagging and insulation on weatherdeck pipe lines and ventilation ducts (except enclosed promenade deck) shall be removed. Steel surfaces exposed by removals shall be scaled, primed and painted to match surrounding areas.

(r) Wooden Decks

Wooden decking shall be inspected jointly by MARAD/MSC representatives and the conditions found will determine action to be taken to ensure that D/H zone can be maintained air/watertight.

(s) Handrails and Ladders

Defective handrails and ladders are to be repaired, replaced or removed. Safety chains or wire shall be installed when ladders or handrails are removed and a personnel hazard would otherwise be created.

(t) Topside Fire Fighting Equipment

Remove all fire hoses, nozzles and self-cleaning strainers from topside and stow in a dehumidified compartment.

(u) Deck Speakers

Remove all speakers, amplifiers and talk-back speakers from open deck, tag and stow in D/H area.

4. Interior Preparation of Ship Before Delivery

(a) Draining and Securing

All systems, bilges and voids shall be completely drained of water and dried. All salt water lines throughout the ship shall be flushed with fresh water and dried. All tanks except lube oil and systems and tanks are to be chemically cleaned, neutralized and dried. Reinstall covers in an ajar position. Package all unused securing items (nuts, gaskets, etc.) and wire adjacent to opening. Complete removal of all water, sludge, and debris is required. Fuel oil left in tanks shall be limited to amounts sanctioned by MARAD representatives. All emptied tanks below the line of flotation except fresh water are to be lightly coated with metal conditioning compound and manhole covers replaced and bolted down airtight. Manhole plates located above the line of flotation, for tanks that are to be placed under D/H, shall be left open. Horizontal openings are to be covered with expanded metal screens. No silica gel is to be placed in emptied tanks (or elsewhere on ships transferred to MARAD). Manhole covers of fresh water tanks and others which are to remain open, shall be secured adjacent to the openings together with unused securing items.

(b) Deck Cleaning

Decks shall be thoroughly cleaned to remove all dirt, loose paint and scale, oil, grease and other foreign materials.

(c) Stowage and Air Diffusion

All gear shall be stored in a shipshape manner with particular attention given to the necessity of dry air reaching all items placed under D/H and to the additional need to maintain easy access to all pats of the ship's interior to observe D/H effectiveness. All 'tween deck hatch beams shall be fitted in place. But 'tween deck hatch covers shall be fitted over hatches to leave 3" air space between each hatch board. Secure all hatch boards with athwartship batten nailed in place. Install safety chain or wire in way of all unguarded hatches or openings. All dunnage to be neatly piled on sleepers. Sealed compartments shall be provided with screened openings to allow the diffusion of dry air.

(d) Staterooms, Living and Berthing Areas

All drawers and lockers shall be opened, cleaned, and reclosed. All rooms, compartments and passageways shall be swept clean and damp mopped and left dust free.

(e) Sanitary Systems

All sanitary traps, toilet bowls, sinks, and wash basins shall be cleaned and dried out and trap plugs removed. If no trap plug is provided, remove trap. All head and washroom doors shall be locked after inspection of the vessel prior to departure for the fleet. The keys shall be delivered to the fleet superintendent when the ship arrives at the fleet.

(f) Boiler, Main

The water sides of boilers, including economizer and superheater tubes, shall be thoroughly flushed with fresh water and cleaned of all loose scale, mud and foreign materials. After cleaning, all parts shall be drained and dried out. One access cover plate shall be removed from each of the following: steam drums, water-wall headers, superheaters, and economizers. The purpose of these removals is to provide for uniform diffusion of dry air when the boilers are placed under D/H. The removed cover plates, together with dogs and nuts, shall be wired adjacent to their respective openings.

Boiler casing doors and inspection plates shall be removed, stowed and secured adjacent to their respective boilers. Burners shall be removed, cleaned, and stowed in the engine room storeroom. The soot shall be removed from firesides including uptakes and stacks by airhose and/or vacuum cleaner. Clean forced draft system including wind boxes and air preheaters. Removal of refractory from boilers shall be on a selective basis as agreed upon by MARAD and MSC representatives. Under no circumstances shall water or steam be used in cleaning the firesides of any boiler after final shutdown.

(g) Boilers, Auxiliary

Steam heat and waste heat boilers shall be thoroughly cleaned on the waterside and dried out. The fire and/or exhaust gas sides including uptakes and stack shall be thoroughly cleaned of all soot and other residue. One manhole plate and one handhole plate shall be removed (if existing) and wired adjacent to their respective openings. Steam or water shall not be used for cleaning firesides. Remove all soot, dust and debris from machinery spaces.

(h) Refrigeration System.

The freon systems shall be tested for tightness, after which it is to be shut down and all valves closed. Sufficient oil shall be added to the compressors to bring the oil level above the top of the shaft seal. The compressor is to be tagged to describe the precautions taken. Wash down all reefer boxes with a solution of sodium bicarbonate.

(i) Diesel engine's exhaust manifold, stack, etc., to be cleaned.

(j) Megger Readings

Insulation resistance readings shall be taken of all generators and motors except those of fractional horsepower. The results of these readings shall be recorded and delivered to the local MARAD representative.

(k) Floor Plates/Gratings

Floor plates and gratings and supports properly secured in place. Install safety chains or wire in hazardous areas (missing plates or handrails).

(l) Ventilation filters

Remove; clean fans and related ducting.

(m) Extermination

A qualified exterminator shall rid the ship of both rodents and objectional insects before it is delivered to the NDRF. The exterminator shall furnish a certificate to MARAD attesting to the fact that he has successfully completed this work.

(n) Chlorinator and Retention Tanks

Chlorination and retention tanks shall be thoroughly cleaned out. Remove and dispose of the charcoal in purifier tanks and leave covers off tanks by turning cover to bottom and securing on two studs or bolts.

(o) Elevators and Dumbwaiters

Secure elevators and dumbwaiters to meet the American Standard Safety Code for elevators. Pits shall be thoroughly cleaned out. Land counterweights on blocks, lower car to bottom of well. Blocks arranged to allow access beneath elevator.

5. Dehumidification (D/H System)

(a) D/H Equipment

The Maritime Administration will provide all D/H equipment except that specified under C-5(f) herein and except for the D/H machines which are to be provided by MSC and placed aboard in locations to be specified by the local Maritime Administration representative. The D/H machines provided are to be new and of the type and size specified in the D/H plan. The working condition of each machine is to be demonstrated to the local Maritime Administration representative prior to the transfer of the ship. The machines shall be equipped with appropriate circuit breakers. There is to be included also a supply of spare parts for two years' operation, and assured available spares from the manufacturer for an additional three years.

(b) Sealing

MARAD will soft seal the ship as necessary, will install topside electrical circuits and D/H equipment, and will air test and modulate the system. D/H will be applied to the interior of the entire ship (except tankers, as provided for under D-3 herein). All main stack openings to the atmosphere, including escape pipes and other exhaust pipes through which air could enter the machinery spaces or boilers, shall be closed air-tight with welded steel plate covers of suitable thickness. All access hatches or manhole covers in stack shall be dogged or bolted down airtight.

Galley stacks, if so fitted, shall be closed off airtight with a welded steel cover of suitable thickness.

Ventilators leading to interior spaces shall be removed and stowed in nearest 'tween-deck. The stumps shall be closed with welded steel plate covers of suitable thickness, of if the stump is provided with a spider, the cover shall be secured by means of a rubber gasket and center bolt through spider. All closures shall be airtight. All mushroom vents that are found defective and cannot be properly closed down on their gaskets shall be treated in the same manner as ventilators.

Skylights serving machinery spaces and adjacent housing shall be closed off airtight by means of a welded steel plate cover over each opening, or by other suitable means as determined by the local Maritime Administration representative.

Intake and exhaust opening (including kingposts) leading to interior spaces shall be made airtight with suitable steel or sheet metal covers welded in place if they are not already fitted with gasketed, hinged metal covers in sound condition that will provide airtight closure. After selected equipment, tools, materials, etc., have been stowed in the holds, weather deck hatch covers shall be set in place.

Metal pontoon covers shall have sheet metal strips 1/16" x 8", tack-welded over joints between pontoons and between pontoons and coamings. Wooden hatch covers shall be completely covered with sheet metal of the above-described thickness, lapped 2" and tack-welded, sheet to sheet and sheet to coaming, as necessary to prevent shifting during tow. The hatch shall then be covered with one or more tarpaulins secured in place to insure weather-tightness. Portlights and weather-tight metal doors shall provide for air-tight closure. All gaskets are to be in good condition and shall be renewed where necessary. The whistle shall be removed and stowed in the D/H area. The opening left in the stack shall be blanked off by welding a plate over it. Close liaison with the local MARAD representatives is essential in order to eliminate any duplication of MSC and MARAD efforts.

(c) D/H Diagrams

MSC will provide MARAD with standard D/H diagram, as necessary.

(d) Weatherdeck D/H

Each weatherdeck D/H package (ordnance and other topside equipment) intended for use with dynamic dehumidification shall be fitted with a clear "sight window" through which humidity indicating devices can be easily read. Such devices are to be installed in each hut by MSC prior to the transfer of the ship.

(e) Ducting

Exposed ducting used to tie weatherdeck packages into the D/H system shall be of the rigid type only. Booster blowers and related circuitry needed for the proper functioning of the topside D/H system shall be installed by MSC prior to transfer.

(f) Power Service

Ship-to-shore power service at the NDRF sites is 3 phase, 440 volt AC. D/H machines shall be designed to operate on this supply. Where single phase power may be needed to service a special component of the D/H system, MSC shall install the necessary equipment and materials.

D. SPECIAL REQUIREMENTS

1. MSC shall provide MARAD appropriate Region Director advance notice of the following actions:

(a) Date and location of a ship's prospective drydocking, bottom repair, bottom painting, underwater blanking of sea chests and sea connections;

(b) Dates when completion of various major stages of inactivation preparations are anticipated.

(c) Date ship will be ready for commencement of tow to the NDRF. The MARAD Region Director when informed of the above scheduling will initiate MARAD actions to evaluate work for conformance with these requirements.

2. MSC shall provide the appropriate MARAD Region Director a copy of a ship's drydocking report prior to entry into the NDRF. This document is to be furnished the Region Director before the ship is taken in tow to the NDRF.

3. Tankers offered for lay-up shall have cargo tanks, pumprooms and pipelines gas freed and a copy of the gas free certificate furnished to the MARAD representative. In general, it is not intended to place cargo tanks and cargo pump rooms under D/H protection after such ships have been delivered to the NDRF. Therefore, inactivation measures performed in these spaces should be scheduled accordingly. Exceptions to the foregoing, designed to permit the application of D/H to selected cargo tanks and/or cargo pump rooms will be allowed when jointly agreed on by MSC and MARAD.

4. Preparation of ships by MSC for either complete or partial D/H shall conform to all of the requirements of this instruction (MA-496B). Spaces, areas, machinery and equipment and other details not specifically covered by MA-496B shall be prepared for lay-up in accordance with agreements reached between MSC and MARAD representatives.

5. Questions regarding amount, retention and treatment of water ballast required for stability purposes shall be referred to COMSC and MARAD-Wash. for a decision.